

Outdoor enclosure type A

User Guide

75010-ODEA-HB-1.docx

CR3298

01/12/2014



Instrument Care and Safety Information

*Please read the whole of this section before using your **ViaLiteHD** product. It contains important safety information and will enable you to get the most from your Fibre Optic link.*

Electrical Safety

The *ViaLiteHD* chassis provides the termination for power inputs and can be fitted with power supplies.



The *ViaLiteHD* chassis is a Safety Class 1 product (having metal chassis directly connected to earth via the power supply cable).

When operating the equipment note the following precautions:

- Hazardous voltages exist within the equipment.
- There are no user serviceable parts inside; the covers **MUST NOT** be removed.
- There are no user replaceable fuses in the chassis mounted equipment. Replacement should only be carried out by a PPM technician.
- The chassis earth stud **SHOULD** be connected to the safety earth.
- When using a 2 pin power supply cable the chassis earth stud **MUST** be connected to the safety earth.
- The *ViaLiteHD* Power Supply Modules do not have an isolating switch on the mains voltage inlet. For this reason, the *ViaLiteHD* chassis **MUST** be installed within easy reach of a clearly labelled dual pole mains isolation switch, which supplies the equipment.
- PSU modules are fused on the mains live feed only. A second fuse should be used for the neutral connection where the polarity of the connectors can be reversed; rating should match those given in section **Error! Reference source not found.**

ESD Precautions



Precautions for handling electro-static sensitive devices should be observed when handling all *ViaLite* modules. Technicians should ensure that they use effective personal grounding (i.e. ESD wrist strap etc.) when servicing the equipment. Any equipment or tools used should be grounded to prevent static charge build-up. Good practice should be observed at all times. For reference see relevant standards.

EN 61340-5-1, "Protection of Electronic Devices from Electrostatic Phenomena – General Requirements"

Optical Safety



The *ViaLite* RF Transmitter and Transceiver modules contain laser diode sources operating at nominal wavelengths of 1270nm to 1610nm.

These devices are rated as EN60825-1:2007 CLASS 1 radiation emitting devices. A class 1 laser is safe under all conditions of normal use.

When operating the equipment note the following precautions:

- Never look into the end of an optical fibre directly or by reflection either with the naked eye or through an optical instrument.
- Never leave equipment with radiating bare fibres – always cap the connectors.
- Do not remove equipment external covers when operating.

Hot surface



The *ViaLite* systems may have hot surfaces when operating under full load. The hot surfaces are not accessible when fitted in an approved chassis installation. Hot surfaces will be appropriately marked

Suitable precaution should be taken when handling this device.

- Allow to cool for 10 minutes
- Do not touch metallic surfaces or printed circuit board when hot.
- When handling, hold front panel and handle only.

TABLE OF CONTENTS

1	REFERENCE DOCUMENT	4
2	INTRODUCTION.....	5
2.1	Typical deployment.....	5
2.2	Care of fibre optic connectors	5
2.3	ViaLiteHD and ViaLite Classic compatibility	5
2.4	Fibre optic cable & connectors.....	6
2.4.1	Connector and cable types	6
2.4.2	Connecting and disconnecting.....	6
2.4.3	Cleaning optical connectors, cleaning before every use	6
2.4.4	Cleaning optical connectors, high levels of contamination	6
2.4.5	FC/APC Connectors.....	7
2.4.6	E2000/APC Connectors	7
2.4.7	SC/APC Connectors.....	7
2.4.8	Minimum bend radius	8
3	SETTING UP THE ODE-A	9
3.1	ODE-A external features	9
3.2	Mounting the ODE-A.....	10
3.2.1	Using the 70002 wall mounting bracket	10
3.2.2	Using the 70004 pole mounting kit.....	11
3.3	Termination of fibre connections	12
3.3.1	Fibre termination, on site fibre termination	12
3.3.2	Fibre termination and dressing, Pre-terminated Cable Option.....	12
3.4	Termination of RF connections	12
3.4.1	RF Module Input/Outputs Levels	12
3.5	Power connections	13
3.5.1	ODE-A power supplies	13
3.5.2	Termination of input power supply.....	13
3.5.3	ODE-A switch bar replaceable fuse	14
3.5.4	ODE-A fuse replacement.....	14
3.6	Weatherproof interface connections.....	14
4	ODE-A, EXTERNAL FEATURES	15
4.1	ODE-A Gland plate	15
4.2	ODE-A Glands.....	16
4.3	Neutrik power connection.....	16
4.4	External Status LED States.....	16
4.5	Digital Output connector	16
4.6	Solar and wind shield, 70001	17
4.7	Lightning Suppressor	17
4.8	Antennas	17
5	ODE-A, INTERNAL FEATURES	18
5.1	ODE-A top plate.....	18
5.2	Replacement of Power Supply Modules.....	18
5.3	Replacement of OEM Modules	18
5.4	PSU power isolation switches	19
5.5	Internal RF connections	19
5.6	Internal optical connections.....	19
5.7	Testing during Operation, using ODE-A motherboard	19
5.8	Configuring the ODE-A motherboard to supply LNA power	20
5.9	LNA power supplies.....	20
5.10	Other motherboard features.....	20
6	ODE-A BASE PLATE	21
6.1	Heater mats	21
6.2	Ancillary components.....	21
7	SPECIFICATION.....	22
8	PART NUMBER MATRIX.....	23
8.1	Associated parts	24
9	MAINTENANCE AND FAULT-FINDING GUIDE.....	25
10	PRODUCT WARRANTY	26
11	FCC APPROVAL	27

1 **Reference document**

The following documents should be used as the master references for operation and control of the fitted equipment

- | | |
|----------------|--|
| • LRx-xM-HB | OEM module user handbook |
| • LRx-D-HB | ViaLite DVB-T user handbook |
| • LRx-G-HB | ViaLite RF GPS link user handbook |
| • LRx-L-HB | ViaLite SatCom RF link user handbook |
| • LRx-R-HB | ViaLite wideband link user handbook |
| • LRx-T-HB | ViaLite timing reference user handbook |
| • LSX-Ex-HB | ViaLite Ethernet link user handbook |
| • LSX-x2-HB | ViaLite serial digital fibre modem user handbook |
| • Lxx-HB | ViaLite system user handbook |
| • Lxx-QS-HB | Vialite quick start guide |
| • Metro-GPS-HB | Metro GPS system user handbook |
| • 72793-HB | Fibre optic cleaning kit user handbook |

This document is correct at the time of printing

2 Introduction

The OutDoor Enclosure type A (ODE-A), is a cost-effective solution for providing weatherproof enclosure for **ViaLite** systems and associated hardware. It is aimed to service the requirements and GPS timing and satellite communication system. It can be optimised to suit a wide range of applications.

The ODE-A system will comprise the following key parts :

- IP-65 rated external enclosure fitted with :
- Dual redundant power supplies
- Capacity of up to three **ViaLite** OEM modules
- Termination of input power cable
- Termination of optical cable
- Connectorised RF inputs / outputs

It has a wide range of optional accessories including.

- Lightning suppressor(s)
- GPS active antenna (s) + fixings
- Optical cable
- Wall or pole mount fixings
- Sunshield
- Low temperature heaters
- Ancillary RF devices

The **ViaLite** RF Fibre Optic Links (FOLs) are a family of fibre optically coupled link systems designed for the transmission of RF analogue signals over long distances for the communications market.

ViaLite is a product brand manufactured by Pulse Power and Measurement Ltd (PPM). **ViaLite Communications** is a division of Pulse Power and Measurement Ltd (PPM).

Detail of the general handbooks are given in section 1.

2.1 Typical deployment

A typical system operates as follows.

The ODE-A would house a set of FOL TX modules, in a remote outdoor location connected to antenna equipment. Antenna electrical signal is input to the transmitter module, which contains RF signal conditioning and laser control circuitry. The module modulates the intensity of a beam of light with the RF signal.

The light travels through an optical fibre to the receiver module. The distance between transmitter and receiver can range from 1m to 100km; distance in excess of 100km can be achieved with more complex optical transport systems, depending on the system specified.

The receiver module converts the modulated light back into an electrical signal, which is available at the output of the module.

2.2 Care of fibre optic connectors

When the fibre optic cables are not connected, it is essential that the cable and equipment connectors are protected by the dust caps provided with the system. Failure to do so may result in damage to the fibre ends, which are critical to the system performance. Please refer to section 2.4 for fibre optic cable handling details.

2.3 ViaLiteHD and ViaLite Classic compatibility

The RF and optical interfaces of most **ViaLiteHD** and **ViaLite Classic** are compatible. However the physical size, mounting systems and control of the modules are different, so it will not be possible to fit **ViaLiteHD** modules in a **ViaLite Classic** chassis or housing and vice versa. However it is possible for chassis of different types to interwork and be used to expand existing systems. Listed below is a brief summary of inter family compatibility.

- | | |
|----------------|---|
| • RF links | Compatible optical and RF interfaces |
| • RF + digital | Compatible optical and RF interfaces |
| ○ RS232 | Compatible optical (check impact on optical link budget) and digital interfaces |
| ○ RS422 | Compatible optical (check impact on optical link budget) and digital interfaces |
| ○ RS485 | Compatible optical (check impact on optical link budget) and digital interfaces |
| • Ethernet | Modules of matching speed have compatible optical and digital interfaces |
| • Switch | Compatible RF interfaces may need interface cable (no optical interface) |
| • Splitters | Compatible RF interfaces |
| • Amplifier | Compatible RF interfaces |
| • Oscillator | Compatible RF interfaces |
| • SNMP | RJ45 interfaces maybe connected, control interface is not compatible, |

Contact **ViaLite Communications** or your local **ViaLite** agent for more details.

2.4 Fibre optic cable & connectors

2.4.1 Connector and cable types

All **ViaLite** RF modules use singlemode (9µm/125µm) cable terminated in a range of optical connectors detailed below. Cross-site fibre optic cables are available from **ViaLite Communications** as either standard patch leads or heavy-duty multicore cables.

Warning! Angle polished (APC) and standard (PC) connector must not be confused. The two connector-types are not interchangeable and mating one with the other will damage both the cable and the module connectors.

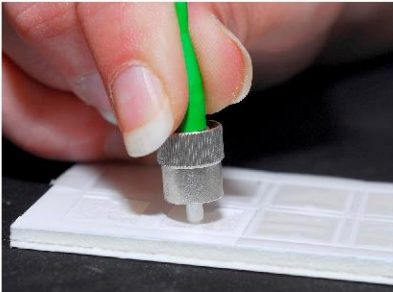
Warning! The specification of optical connector is critical to the performance of the complete fibre optic link. System performance can only be guaranteed with fibre optic cables and connectors supplied by **ViaLite Communications**. When FC/APC connectors are specified they must be "narrow key width"

2.4.2 Connecting and disconnecting

Before connecting optical fibres to the module or to each other, ensure that the mating connectors are clean (see below).

2.4.3 Cleaning optical connectors, cleaning before every use

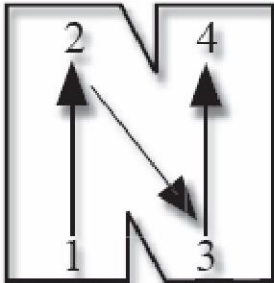
Optical connectors **MUST** be cleaned before use, even where they have been protected with dust caps. **Most performance issues are due to dirty fibres.**



- Peel the plastic cover from an unused "N" cleaning pad.
- Hold the connector between your thumb and forefinger

Clean the connector using firm pressure by swiping in a pendulum motion through each segment of the "N" shape, following the diagram

- Do not swipe over the same space twice.



For more details please read the cleaning instruction which accompanies the connector cleaning kit. Details can also be found on the CD supplied with your equipment.

2.4.4 Cleaning optical connectors, high levels of contamination

If there are performance issues that are not resolved by basic cleaning in section 2.4.3, then the following procedure should be used. If the level of contamination is high it will be necessary to repeat this procedure.

Cleaning items required

- Lint free fibre cleaning tissues and/or cleaning sticks (normal cosmetic tissues produce dust and are not acceptable).
- Reagent grade Iso Propyl Alcohol (IPA).
- Air duster or filtered compressed air line.

Cable Connector Cleaning

- Dampen a patch of cleaning tissue with IPA and clean all surfaces of the plug ferrule.
- Using a dry cleaning tissue, dry the ferrule and clean the end face.
- Using the air duster, blow away any residue from the end of the connector.

Module Female Receptacle Cleaning (only recommended if problems are being experienced)

- Either use an optical cleaning stick or twist a cleaning tissue to form a stiff probe, moisten either with IPA. Gently push the probe into the receptacle and twist around several times to dislodge any dirt.
- Repeat the above process with a dry tissue.
- Using the air duster, blow away any residue from the receptacle.

Important Notes

- IPA is flammable. Follow appropriate precautions / local guidelines when handling and storing.
- IPA can be harmful if spilt on skin. Use appropriate protection when handling.
- It should only be necessary to clean the female receptacles on the modules if problems are being experienced.

Never inspect an optical fibre or connector with the naked eye or an instrument unless you are convinced that there is no optical radiation being emitted by the fibre. Remove all power sources to all modules, and completely disconnect the optical fibres.

2.4.5 FC/APC Connectors

All **ViaLite** FC connectorised modules use FC/APC (narrow key). Clean the plug before inserting see section 2.4.3.

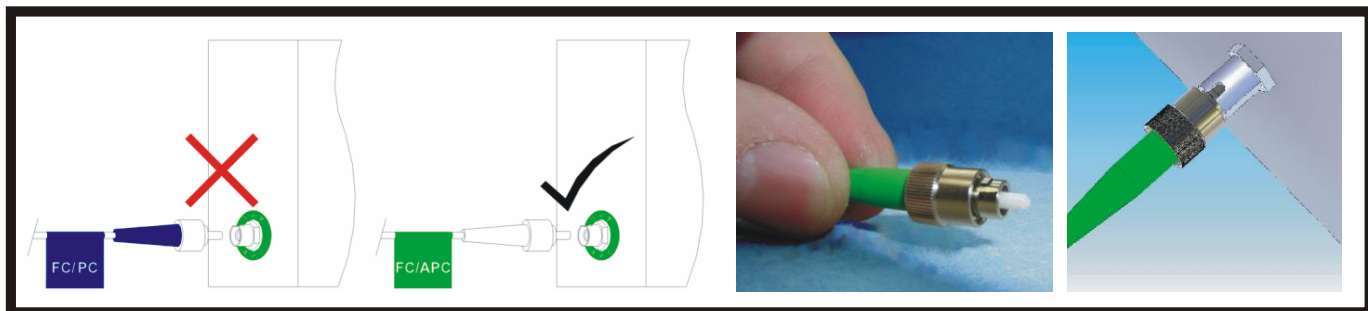
To connect FC/APC optical connectors follow these steps:

- Remove the dust caps and align the white ceramic centre ferrule on the cable connector with the mating receptacle.
- There is a key (lug) on the side of the ferrule, which must match the keyway (gap) in the receptacle shroud.
- When they are aligned, gently push the plug home.
- Finger tighten the knurled collet nut onto the threaded receptacle.

To disconnect follow these steps:

- Using fingers fully unscrew the knurled collet nut, gently withdraw the connector.
- Replace the dust caps on both the receptacle and the cable plug.

Warning! It is possible to tighten the knurled collet without aligning the lug and gap. This will result in poor light transmission. Check that the lug and gap are aligned before tightening the knurled collet



Only connect FC/APC cable to FC/APC modules

Locate connector key

Align key and keyway

2.4.6 E2000/APC Connectors

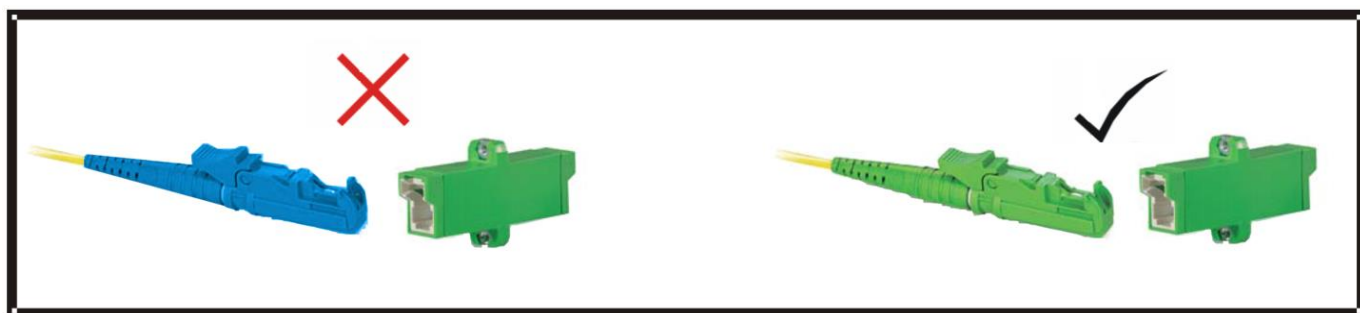
All **ViaLite** E2000 connectorised modules use E2000/APC. Clean the plug before inserting see section 2.4.3.

To connect E2000/APC optical connectors follow these steps:

- Gently push the plug-into the E2000/APC adapter.
- The cover will automatically disengage.
- Push until a click is heard and the connector locks.

To disconnect follow these steps:

- To disconnect, depress the lever at the rear of the connector and withdraw the connector.
- The protective cover automatically engages when removed.



Only connect E2000/APC cable to E2000/APC adaptors.

2.4.7 SC/APC Connectors

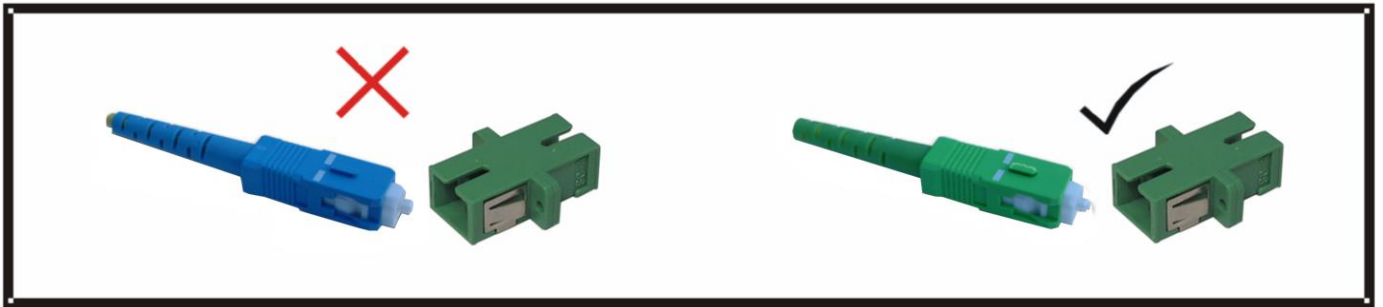
All **ViaLite** SC connectorised modules use SC/APC. Clean the plug before inserting see section 2.4.3.

To connect SC/APC optical connectors follow these steps:

- Remove the plug protective cover.
- Align the connector keyway slot in the adaptor to the key of the plug.
- Gently push the plug-into the adaptor until a click is heard and the connector locks.

To disconnect follow these steps:

- grip the body of the plug and gently pull the plug from the adaptor, replace the protective cover.



Only connect SC/APC cable to SC/APC.

2.4.8 Minimum bend radius

Because optical fibre is made of glass, it is important not to subject it to excessive stress. For this reason, each type of cable has a minimum bend radius (MBR) specification, beyond which the cable cannot be bent without permanent damage occurring.

The minimum bend radius (MBR) of fibre optic cable fitted to **ViaLite** modules is 50mm. MBR specifications for **ViaLite Communications** supplied fibre optic cables are given in the **ViaLite Classic** and **ViaLiteHD** System Handbooks Lxx-HB and Hxx-HB respectively.

3 Setting up the ODE-A

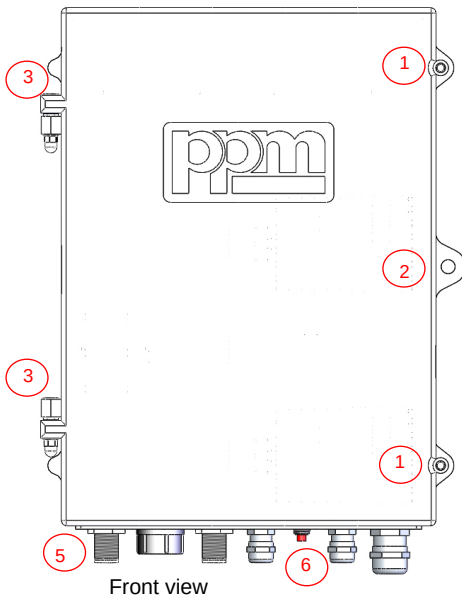
This section describes the connections between your ODE-A and external systems and set that must be taken to set it up. Your ODE-A should be delivered preconfigured and ready, but will require connections to external services. This will generally require that you take the following steps.

- Mount the ODE-A in the required location
- Terminate the fibre connections
- Terminate the RF connections
- Terminate the input power

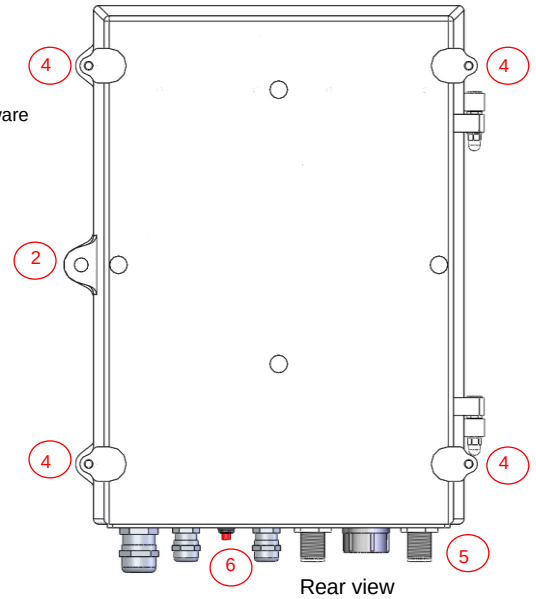
3.1 ODE-A external features

The ODE-A is closed via two M5 screws (91052) this can be torqued with a 4mm AF hexagonal key (supplied with system). The rear provides fixing points for mounting the unit to either a wall mount plate or a pole mounting kit. The unit may also be fitted with a solar shield, this is advisable for any application where there may be significant solar gain.

- 70001 Sunshield & Windshield- use in high or low ambient temperatures, attaches onto 75010 Outdoor Enclosure lid.
- 70002 Wallmount Plate for 75010 Outdoor Enclosure, Kit & Fixings
- 70004-XXX Pole mounting kit, pole diameter XXX (diameters range from 15 – 168mm)
- 70005 GPS Marine Antenna SA200 with mounting hardware
- 70006 Lightning Suppressor Kit for Outdoor Enclosure, 800-2500MHz Passband + DC Path, 1 required per RF Channel
- 70013 Lightning Suppressor Kit for Outdoor Enclosure, DC-5800MHz Passband, 1 required per RF Channel



1. Lid securing screws
2. Optional lock attachment
3. Hinges
4. Securing points for mounting hardware
5. Glandplate
6. Status LED

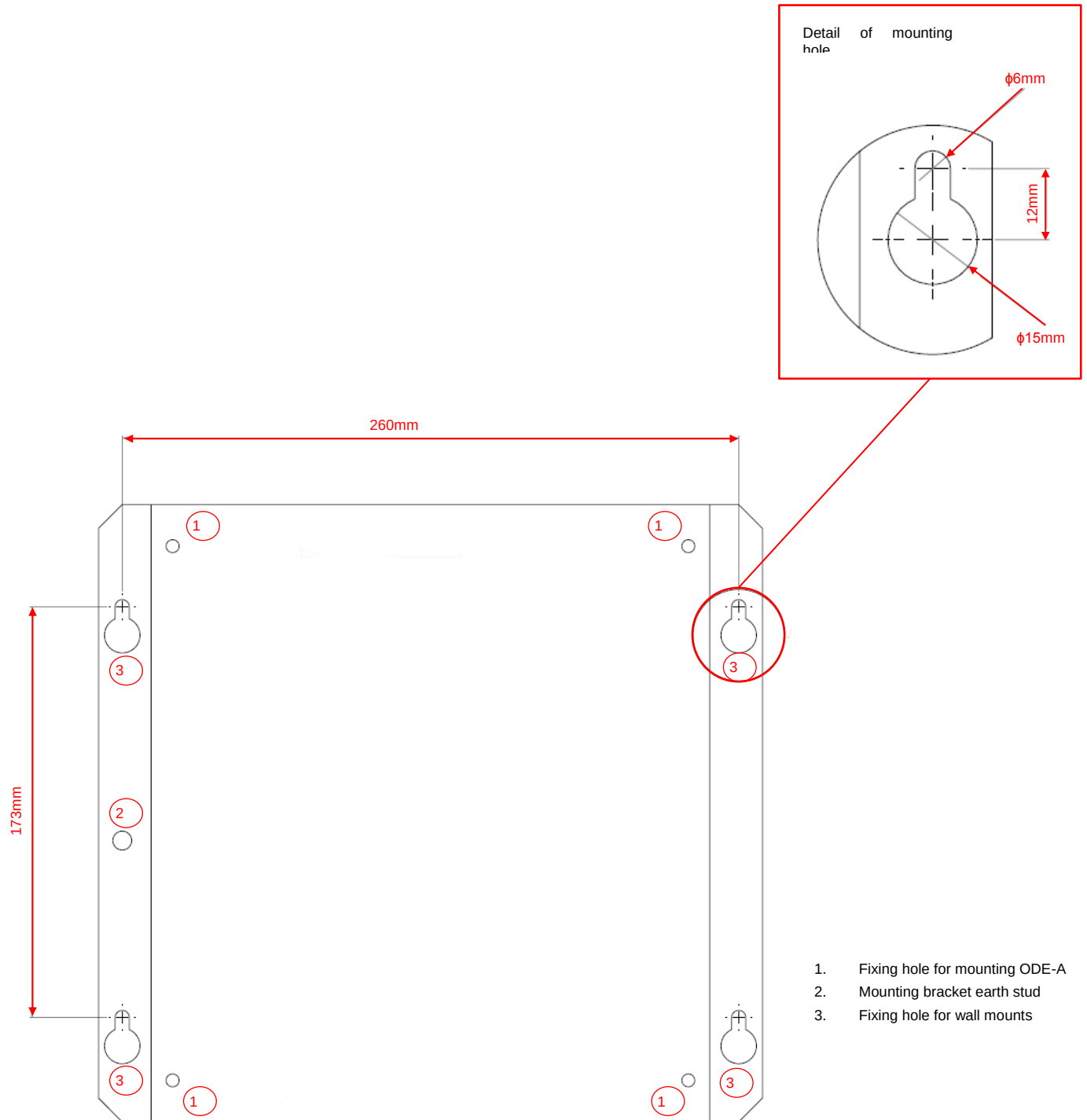


3.2 **Mounting the ODE-A**

3.2.1 **Using the 70002 wall mounting bracket**

To wall mount your enclosure follow these steps:

- Drill holes in wall/ panel as per dimensions in drawing.
- Mount screws/ fixing hardware into wall.
- Slide Outdoor Enclosure/ Wall Bracket onto position using the keyhole slots.
- Once on wall, tighten fixing hardware to ensure Assembly is firmly held in situ.

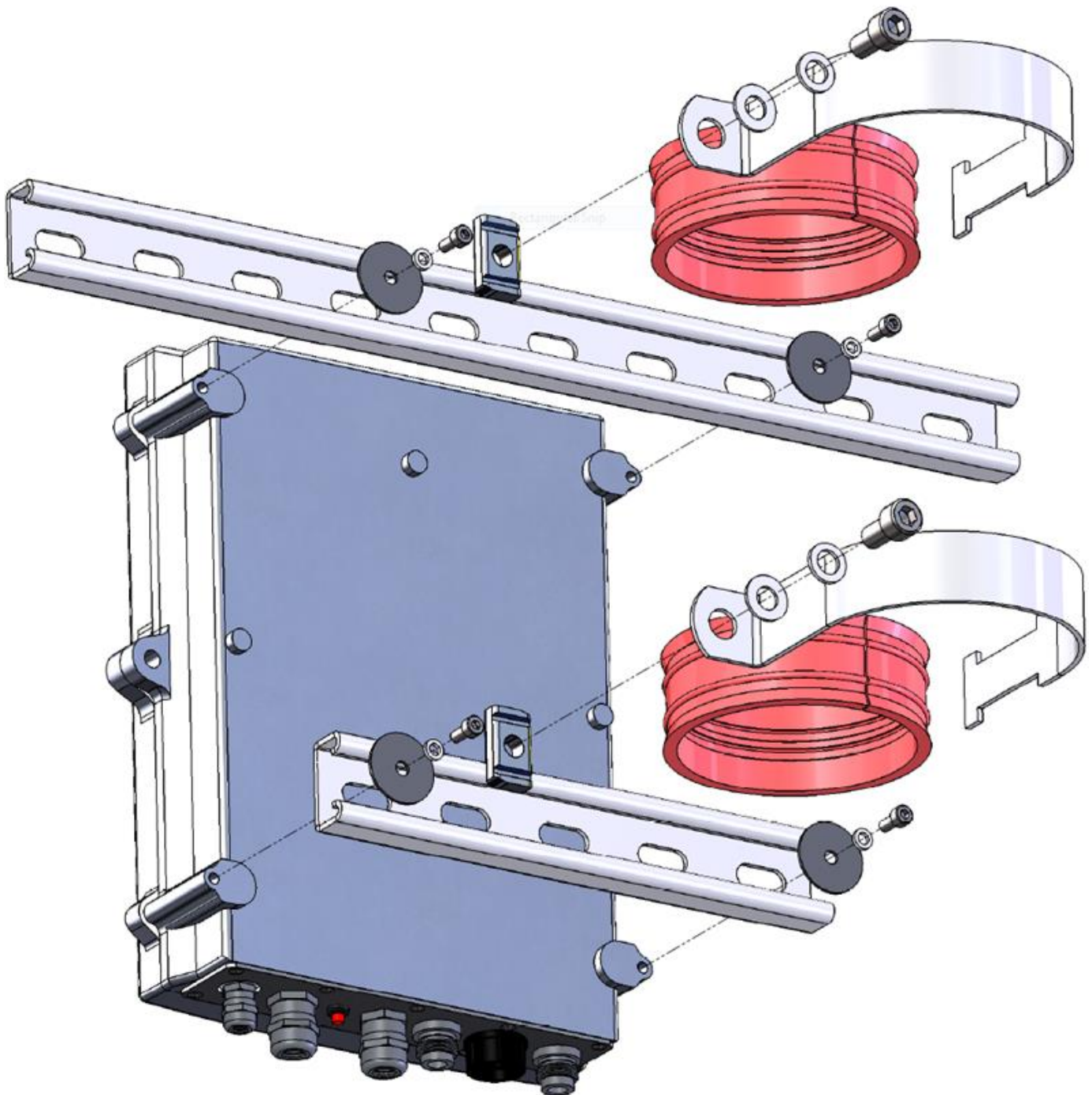


3.2.2 Using the 70004 pole mounting kit

The pole mounting kit comes with installation instructions, see section 8.1 that shows the range of pole mounting kits available and the pole sizes onto which they fit.

To pole mount your enclosure follow these steps:

- Mount the long length of unistrut centrally to the top of the ODE-A using the supplied washers and screws (small).
- Mount the short length of unistrut centrally to the bottom of the ODE-A using the supplied washers and screws (small).
- Slide one unistrut nut into the top and one into the bottom.
- Wrap the pole with the pipe grommet, in the top position.
- Slide one end of the clamp into the top unistrut channel.
- Torque the screw (large) and supplied washers to the unistrut nut in the top channel.
- Wrap the pole with the pipe grommet, in the bottom position.
- Slide one end of the clamp into the bottom unistrut channel.
- Torque the screw (large) and supplied washers to the unistrut nut in the bottom channel.
- Ensure all screws are tight and the mounting is secure



3.3 **Termination of fibre connections**

3.3.1 **Fibre termination, on site fibre termination**

To terminate a fibre cable to the units within the ODE-A, follow the steps below.

- Open the enclosure using the supplied hexagonal key
- Power OFF the unit by switching OFF all power isolation switches (adjacent to the power supplies).
- Disconnect the motherboard power loom J7
- Undo the two screws holding the hinge plate down, retain to be refitted
- Swing the hinge plate up so as not to trap any RF/optical or signal cables
- Thread the gland nut and O ring onto the optical cable
- Feed the cable through the gland plate.
- Make a high quality fusion splice(s) between the incoming tail(s) and the connectorised pigtail(s).
- Clean all optical connectors
- Connect the pigtails into the optical connector block, where they will mate with the pigtails from the OEM modules
- Dress optical splices, excess fibre can be stowed in the fibre management area.
- Check none of the fibres is under strain
- Offer up the O ring then assemble and tighten the cable gland.

Your unit can be supplied with matching pigtails and fibre dressing sundries, please contact **ViaLite communications**.

- 83009 FC/APC Pigtail, 8/125um, 900um coated fibre
- 83016 E2000/APC Pigtail, 8/125um, 900um coated fibre
- 83033 SC/APC Pigtail, 8/125um, 900um coated fibre
- 83037 SC/PC Pigtail, 8/125um, 900um coated fibre

3.3.2 **Fibre termination and dressing, Pre-terminated Cable Option**

Preterminated optical cables offer a quick and convenient way of making optical interconnects without specialist equipment or contract services. When shipped the optical cable entry/exit point is normally protected by a blanking cap. To terminate a Fastline fibre cable to the units within the ODE-A, follow the steps below.

- Remove the blanking cap from the gland plate
- Open the enclosure using the supplied hexagonal key
- Power OFF the unit by switching OFF all power isolation switches (adjacent to the power supplies).
- Disconnect the motherboard power loom J7
- Undo the two screws holding the hinge plate down, retain to be refitted
- Swing the hinge plate up so as not to trap and RF/optical or signal cables
- Remove the pulling sock, from the Fastline cable.
- Offer the fibre up to the Fastline opening
- Feed the connectorised fibre pigtails through the hole
- Thread the Fastline nut onto the cable and tighten to the inside of the gland plate
- Clean all optical connectors
- Connect the pigtails into the optical connector block, where they will mate with the pigtails from the OEM modules
- Dress cables, excess fibre can be stowed in the fibre management area.
- Check none of the fibres is under strain

Your unit can be supplied with fibre dressing sundries, please contact **ViaLite communications**.

3.4 **Termination of RF connections**

The ODE-A uses a range of external RF connectors. Please ensure that RF connections are made with correctly matched connectors and cable impedances. Failure to do so may result in physical damage to the connectors and loss of performance.

External RF connections normally use N-Type connectors. N-Type connectors are available in both 50 and 75 ohms, 50 ohm N-Types are preferred. You MUST ensure that both halves are the same impedance; mating dissimilar connectors will cause permanent physical damage.

3.4.1 **RF Module Input/Outputs Levels**

- RF inputs and outputs should not be exposed to DC voltage levels in excess of $\pm 36V$.
- Absolute maximum no damage RF input level is +13dBm (some units will tolerate more, see handbook).

Some transmitter modules are pre-configured to have a DC voltage present on the RF input connector, to drive low noise amplifiers and similar equipment. All receiver modules will create up to 2V peak DC transient from the RF output at start up into a 50 Ω load (approximately 5V into a 1M Ω load). This may cause failure in some very sensitive equipment.

All modules have AC coupled inputs and/or outputs and will be sensitive to large transients (>5V) applied to either input or output. This may result in permanent damage to the units, particularly to low frequency units. Some receiver modules are equipped with DC loads on their outputs, please see module handbook. Contact **ViaLite communications** for more details.

3.5 Power connections

The ODE-A can support a range of power sources both AC and DC. It will be factory configured to support your requirement. Power cables are generally fitted through a PG11 gland.

Enclosures can be fitted with prewired connectorised power feeds, the preferred option is to use a NEUTRIK connector, see section 4.3. These can also use LEMO and XLR power connectors. They only require that the mating half is wired to the local power source.

3.5.1 ODE-A power supplies

The ODE-A is equipped with internal power supply modules. It is generally equipped with dual redundant PSU modules in left hand (LH) and right hand (RH) positions. It can optionally be equipped with either just a single main PSU module (LH) or with a main PSU (LH) and LNA PSU (RH). The voltage inputs for the various power supplies options have the following requirements.

- | | | |
|-----------------------|------------------------|------------------------|
| • AC input wide range | 88 – 264Vdc, 47 - 63Hz | Power supply: LPS-H |
| • 12V nominal input | 9.2 – 18Vdc | Power supply: LPS-H-12 |
| • 24V nominal input | 18 - 36Vdc | Power supply: LPS-H-24 |
| • 48V nominal input | 36 - 72Vdc | Power supply: LPS-H-48 |

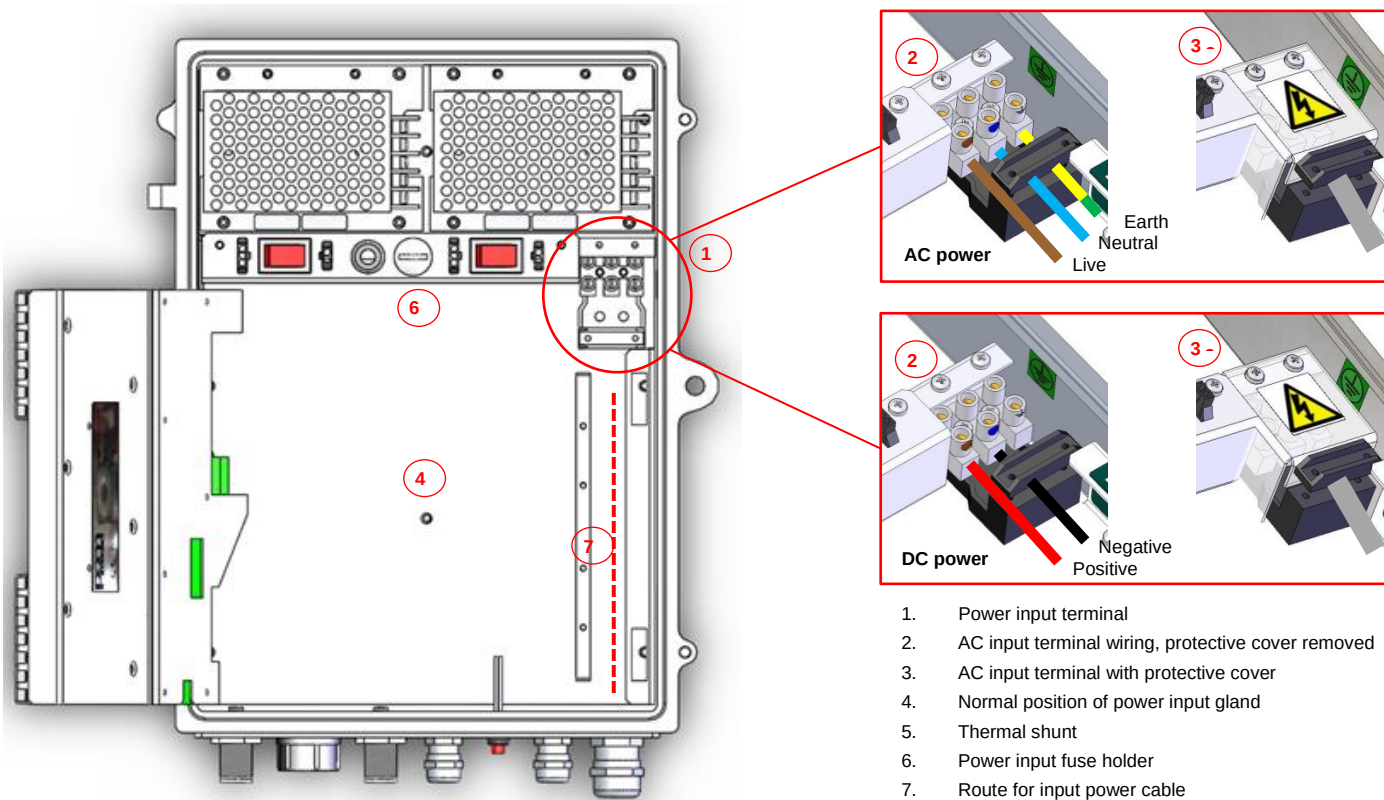
3.5.2 Termination of input power supply

This equipment must be earthed in accordance with the local codes. Incomplete or incorrect earthing will cause a safety hazard.

The power connection is made by introducing the mains cable via the cable gland on the gland plate at the base of the unit. The incoming power cable must be of a diameter to match the power input gland. Follow the steps below.

- Ensure that the power cable is isolated and no power is present during installation.
- Remove the transparent protective plate from over the mains connection area, shown in the image below.
- Thread the gland nut and O ring onto the input cable.
- Feed the cable through the gland plate.
- Strip the cable to reveal 6-8 mm of each conductor.
- Connect the mains cable following the markings on the connection terminals.

AC power	DC power
○ L = Live = Brown	L = Positive = Red
○ N = Neutral = Blue	N = Negative = Black
○ E = Earth = Green / Yellow	E = Chassis
- Check screws are tight and cable are retained.
- Tighten the cable clamp to the external jacket, this should not clamp to the separate wires.
- Refit the protective plate over the mains connection area.
- Check there are no exposed conductors and the cable is well dressed, between clamp and gland
- Assemble and tighten the cable gland.



3.5.3 ODE-A switch bar replaceable fuse

The incoming power to the ODE-A is protected by a common replaceable fuse. This is fitted to the power switch bar inside the ODE-A. Details of this fuse if different to the standard fuse are given in your custom handbook. The standard fuse is used in all AC, 48Vdc and 24Vdc powered units, unless otherwise advised.

- Standard replaceable fuse 2A, 250V, anti-surge, 20 x 5mm, PPM part number 57107, please check before replacing

Units fitted with low voltage input DC power supplies (below 12Vdc nominal or below) will generally be fitted with higher current rated fuses.

- 12Vdc replaceable fuse 5A, 250V, anti-surge, 20 x 5mm, PPM part number 57109, please check before replacing

3.5.4 ODE-A fuse replacement

To replace the fuse, follow these steps:

- First isolate the unit from the mains power inlet by switching the power isolation switches OFF.
- Unscrew the top of the fuse holder, you may do this by hand or using a slotted screw driver.
- Fully withdraw the fuse holder, the fuse will be captive in the fuse holder.
- Remove the failed fuse from the fuse holder and replace with your new fuse.
- Screw the fuse holder back into the switch bar.
- Apply power by switching the power isolation switches ON.

3.6 Weatherproof interface connections

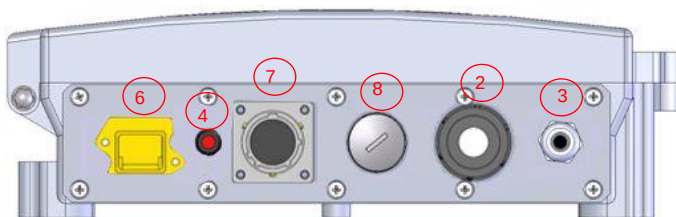
To maintain the enclosure's IP rating, you should observe the following:

- The front door should be closed and screws tightened.
- All glands should be compressed on to either a cable or blanking rod.
- All connectors should be mated to either a matching half or suitable sealing dust cap.

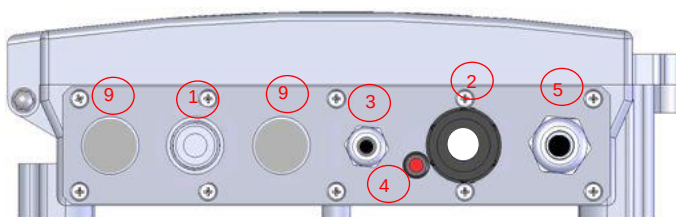
4 ODE-A, external features

4.1 ODE-A Gland plate

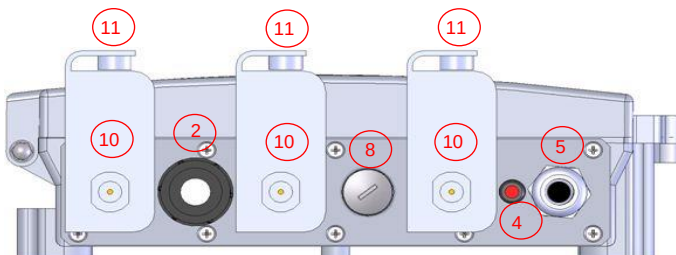
Each ODE-A is fitted with a glandplate that is optimised for each application, a wide range of interconnects are offered. Below is shown a selection of glandplates. Not all glandplates offered are show below.



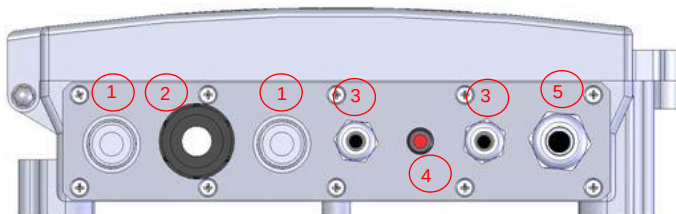
ODE-A fitted with RJ45 (6), 62GB for digital data (7) and Fastline fibre (8) and power cable PG11 gland (3)



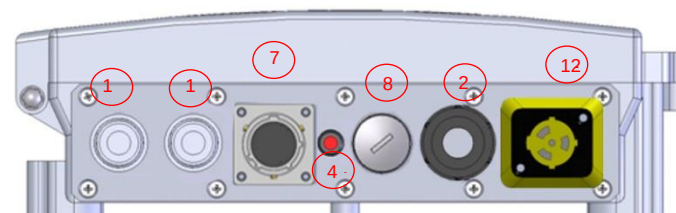
ODE-A fitted with 1x N-Type RF connector (1), PG7 fibre cable gland (3) and power cable PG11 gland (5)



ODE-A fitted with 3x Lightning Suppressor Kit s, PG11 mains power cable gland (5) and Fastline interface (8)



ODE-A fitted with 2x N-Type RF connectors (1), 2 x PG7 fibre cable glands (3) and power cable PG11 gland (5)



ODE-A fitted with 2 x N-Type RF connectors (1), 62GB for digital data (7), Fastline fibre interface (8) and Neutrik mains power connector (12)

- | | |
|--------------------------------|--|
| 1. N-Type RF connector | 7. 62GB multipole connector |
| 2. Humidity control gland | 8. Fastline (16mm diameter) * |
| 3. PG-7 gland | 9. N-Type weatherproof blank ** |
| 4. Status LED | 10. N-Type lightning suppressor |
| 5. PG-11 gland | 11. Earthing point for lightning suppressor |
| 6. Weatherproof RJ45 push pull | 12. Neutrik, 3 pole circular, weatherproof power connector |
- * Blanking cap shown, must be remove before fitting Fastline preterminated cable
 ** Fitted to unused RF connector positions

4.2 ODE-A Glands

When using the any gland, feed the cable through ensuring that the gland nut and O-ring are fitted; tighten the gland nut once the cables are properly terminated. The main types of glands used are shown below.

- PG-7 fits cable diameters 2 - 6.5mm used for optical cables, requires that fibre is terminated on-site
- PG-11 fits cable diameters 5 - 10mm used for power cables
- PG-13.5 fits cable diameters 6 - 12mm
- M16 fits cable diameters 2 - 7mm

Glands MUST only be used for unterminated fibre cables, most fibre connector (FC/SC/E2000) will not fit through a gland aperture.

4.3 Neutrik power connection

Enclosures can be supplied with a connectorised power input; the preferred solution is to use a NEUTRIK NAC3 power connector. The male connector is fitted to the glandplate, the cable mounting free female is supplied for on-site termination.

These are used for both AC and DC power. For AC connection connect LIVE/NEUTRAL/EARTH as labelled. When used for DC power the POSITIVE should be connected to the LIVE and the NEGATIVE should be connected to the NEUTRAL. The supplied mating half is:

- NAC3FX-W Female Black, Yellow 2P+E Power Connector Mains 20A Socket Cable Mount, 250 V ac, Polyamide



4.4 External Status LED States

The ODE-A is fitted with an external status indicator on the bottom glandplate. The status indicator flashes to display the state of the equipment. There are three distinct flash rates :

Periodic blinking (one flash / 2sec.)	Okay
Flashing (two flashes / sec.)	PSU Failure *
Rapid flashing	OEM Failure

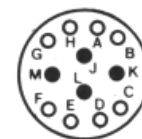
* NOTE: If the external power supply fails the LED and the whole unit will be non-functional

4.5 Digital Output connector

If your enclosure is fitted with serial data modules, it will be fitted with data connectors. You will be advised of the data connections to your enclosure in your custom enclosure handbook. Below are examples of data connectors for various types of enclosures. The data connector is fitted to the glandplate. Normally this will be a 62GB style connector and is supplied with an unwired mating half for on-site termination.

Part number: AMPHENOL 62GB-12E14-12SN(416)
Insert Arrangement: 14-12, receptacle, panel, Socket

Supplied mating connector: 62GB-56T14-12PN(416)
14-12, plug, free, pin



Lettering of inserts shown corresponds to view of front
Mating surface of pin inserts or rear face (cable accessory end) of socket inserts.

KEY: ● No 16 size contact
○ No 20 size contact

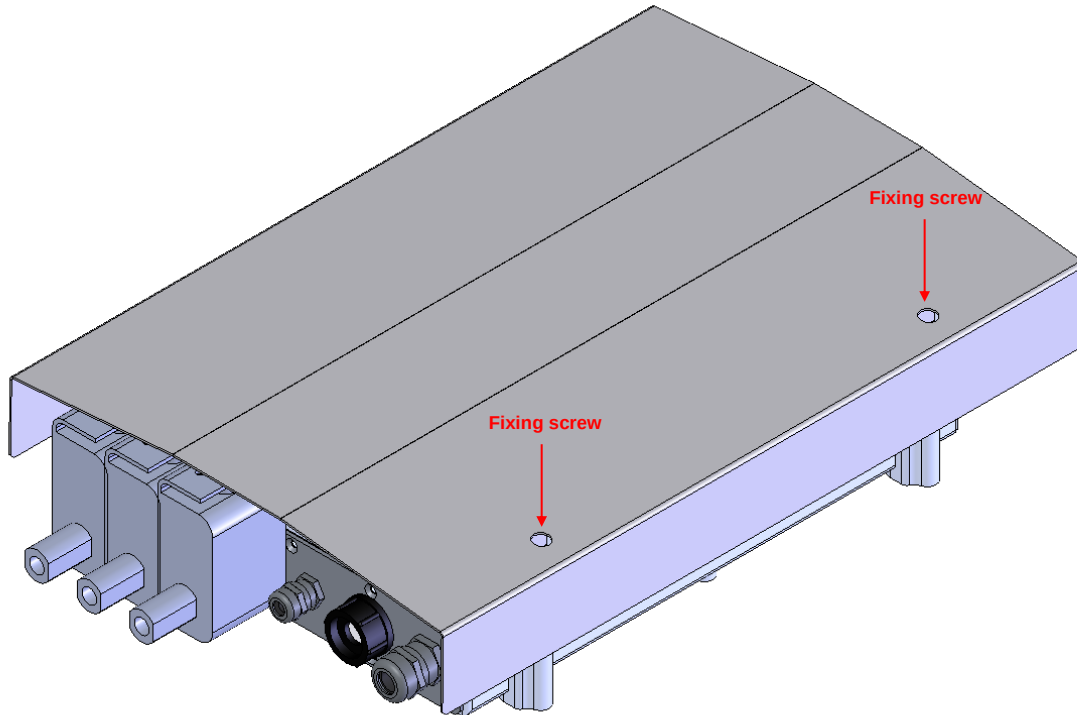
A selection of pin outs of the 62GB connector are given below

Pin	1xRS422 module	2xRS422 module	3xRS422 module	1xRS422 module + power	1xTTL module + power
A	OEM 1 RS422 IN –	OEM 1 RS422 IN –	OEM 1 RS422 IN –	OEM 1 RS422 IN –	
B	OEM 1 RS422 IN +	OEM 1 RS422 IN +	OEM 1 RS422 IN +	OEM 1 RS422 IN +	OEM 1 TTL/RS232 IN
C	OEM 1 RS422 OUT +	OEM 1 RS422 OUT +	OEM 1 RS422 OUT +	OEM 1 RS422 OUT +	OEM 1 TTL/RS232 OUT
D	OEM 1 RS422 OUT -	OEM 1 RS422 OUT -	OEM 1 RS422 OUT -	OEM 1 RS422 OUT -	
E		OEM 2 RS422 IN –	OEM 2 RS422 IN –	GND	GND
F		OEM 2 RS422 IN +	OEM 2 RS422 IN +	+12V	+12V
G		OEM 2 RS422 OUT +	OEM 2 RS422 OUT +		-
H		OEM 2 RS422 OUT -	OEM 2 RS422 OUT -		-
J			OEM 3 RS422 IN –		-
K			OEM 3 RS422 IN +		-
L			OEM 3 RS422 OUT +		-
M			OEM 3 RS422 OUT -		-

4.6 **Solar and wind shield, 70001**

Your enclosure can be supplied with an optional solar / wind shield. In hot climates this will significantly reduce the solar gain of the outdoor enclosure and create a chimney effect between the solar shield and enclosure. In cold climate it can be used as a wind shield reducing the unwanted cooling effect of high velocity winds.

Your solar shield will be supplied fitted. The solar shield shares the same hinge assembly as the enclosure front door. It is fastened and released with the screws that hold the enclosure door shut



4.7 **Lightning Suppressor**

There are a number of options available to protect your enclosure and equipment from electromagnetic pulses, each suppressor will protect a single RF channel. The larger 70006 suppressor has a grounding fixing (M8) on the suppressor this should be used to achieve maximum protection. The standard options are:

- 70006 Lightning Suppressor Kit for Outdoor Enclosure, 800-2500MHz Passband + DC Path, 1 required per RF Channel
- 70013 Lightning Suppressor Kit for Outdoor Enclosure, DC-5800MHz Passband, 1 required per RF Channel

4.8 **Antennas**

A range of GPS antennas are available that are compatible with the ODE-A a selection are shown below.

- 70005 GPS marine active antenna, 5dBi, 28dB amplifier gain
- 70040 GPS active antenna, 3.5dBi, 50dB amplifier gain

70040, 33dBi
Gain antenna



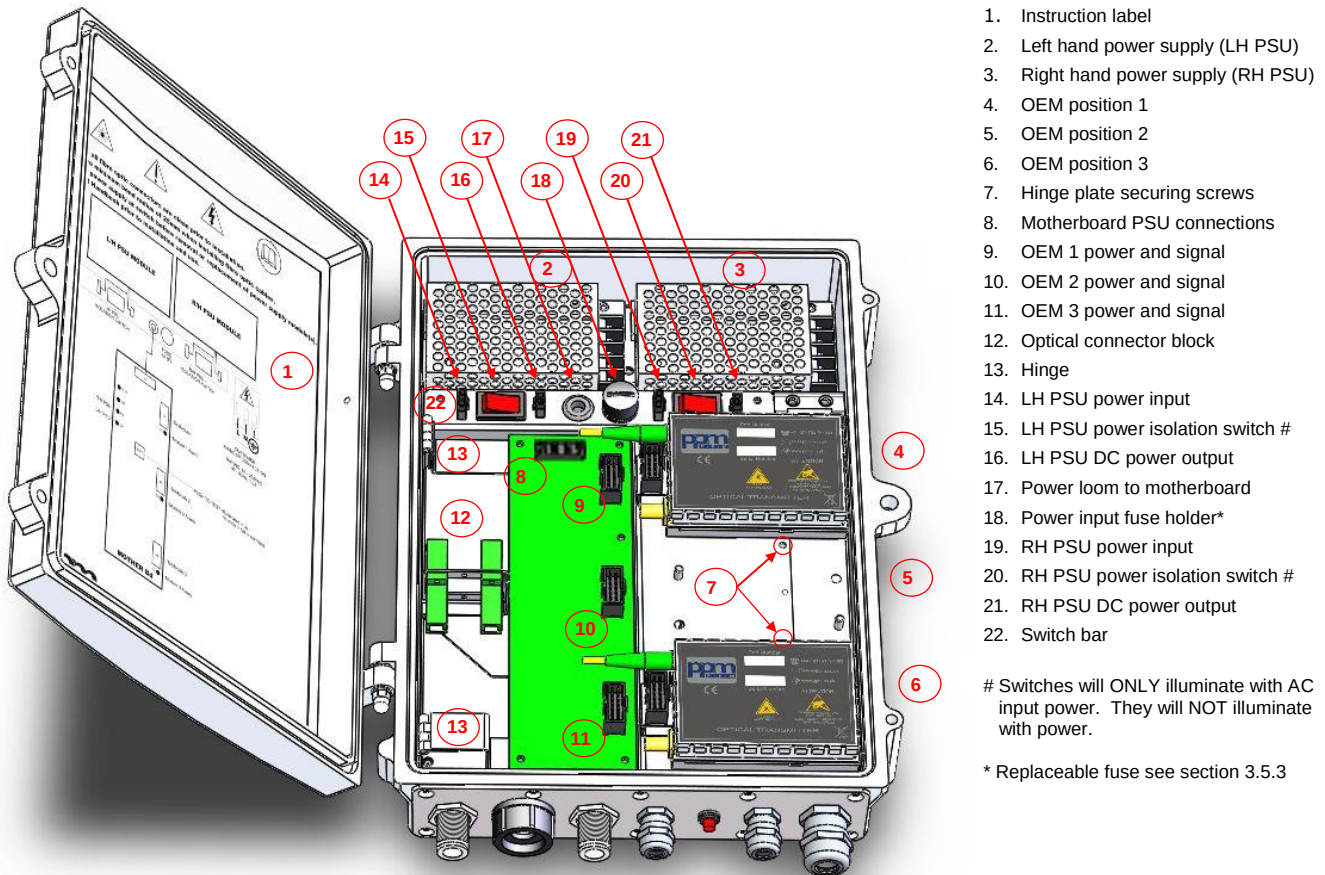
70040,
53.5dBi



5 ODE-A, internal features

5.1 ODE-A top plate

The top plate of the ODE-A allows access to motherboard, power supplies, power distribution bar, optical connectors, internal cabling, jumpers and OEM modules. In the picture below internal cabling has been omitted for clarity.



1. Instruction label
2. Left hand power supply (LH PSU)
3. Right hand power supply (RH PSU)
4. OEM position 1
5. OEM position 2
6. OEM position 3
7. Hinge plate securing screws
8. Motherboard PSU connections
9. OEM 1 power and signal
10. OEM 2 power and signal
11. OEM 3 power and signal
12. Optical connector block
13. Hinge
14. LH PSU power input
15. LH PSU power isolation switch #
16. LH PSU DC power output
17. Power loom to motherboard
18. Power input fuse holder*
19. RH PSU power input
20. RH PSU power isolation switch #
21. RH PSU DC power output
22. Switch bar

Switches will ONLY illuminate with AC input power. They will NOT illuminate with power.

* Replaceable fuse see section 3.5.3

5.2 Replacement of Power Supply Modules

The outdoor housing can be fitted with either one or two power supply modules, the latter provides dual redundant power supply protection for the housing. The power supplies come pre-installed in the outdoor housing. Should it be necessary to replace a power supply module, follow these steps:

- First isolate the unit from the mains power inlet by switching the power isolation switch adjacent to the unit OFF.
- Disconnect both electrical connections between the power supply module and the switch bar.
- Undo the four screws holding the power supply unit in place. Retain the screws to refit the new power supply.
- Locate the new module on the dowels in the base plate. Replace the screws to hold the power supply module in place.
- Reconnect the two electrical connections between the power supply module and the switch bar.
- Apply power by switching the power isolation switch ON

5.3 Replacement of OEM Modules

Should it be necessary to replace an OEM module, follow these steps:

- Power OFF the unit by switching OFF all power isolation switches (adjacent to the power supplies).
- Disconnect the motherboard power loom J7.
- Undo the two screws holding the hinge plate down.
- Swing the hinge plate up being careful not to trap and RF/optical or signal cables.
- From the bottom of the hinge plate remove the two screws holding the fitted OEM module in place and retain for later use.
- Disconnect the optical connection and place a dust cap in the open optical connector.
- Disconnect the electrical connection to the OEM module.

- Locate the new OEM module onto the Dowels.
- From the rear of the hinge plate fasten in place with two screws.
- Swing the hinge plate closed being careful not to trap and RF/optical or signal cables.
- Fix the hinge plate in place with the two previously removed screws.
- Make the electrical connection between the motherboard and the OEM module power and signal connection.
- Clean new OEM module optical connector, remove the dust cap and fit to the optical connector block.
- Reconnect the motherboard power loom J7.
- Power ON the unit down by switching ON all power isolation switches (adjacent to the power supplies).

If a module is fitted in a previously empty position, you will need to remove the fitted "alarm defeat" plug from the motherboard connector adjacent to the missing module.

If modules are removed and not replaced, you will need to fit an "alarm defeat" plug to the motherboard connector adjacent to the missing module. This will ensure that the module alarm LED does not register a false reading due to modules not fitted.

5.4 PSU power isolation switches

Each power supply is fitted with an isolation switch that will disconnect the incoming power to the unit immediately above it. The switch is a two pole switch, switching both live and neutral.

These switches will illuminate when ON for enclosure with AC power feeds they will be extinguished when the switch is OFF. They will not illuminate in either ON or OFF positions for units with DC power feeds.

5.5 Internal RF connections

Internal connections are normally made with SMA and MCX connectors. SMA RF connectors should only be connected with a calibrated SMA torque spanner. External RF connections normally use N-Type connectors (BNC is also available). You MUST ensure that both halves are the same impedance; mating dissimilar connectors will cause permanent damage.

5.6 Internal optical connections

Internal optical connections are made on the optical connector block, shown in section 5.1, this is normally a set of three connectors mounted above the hinge plate for enclosures containing only RF modules. It can be expanded to six connectors for enclosures containing serial digital modules, by an extra bank of connectors under the hinge plate. A range of connector types can be accommodated, most common types are shown below.

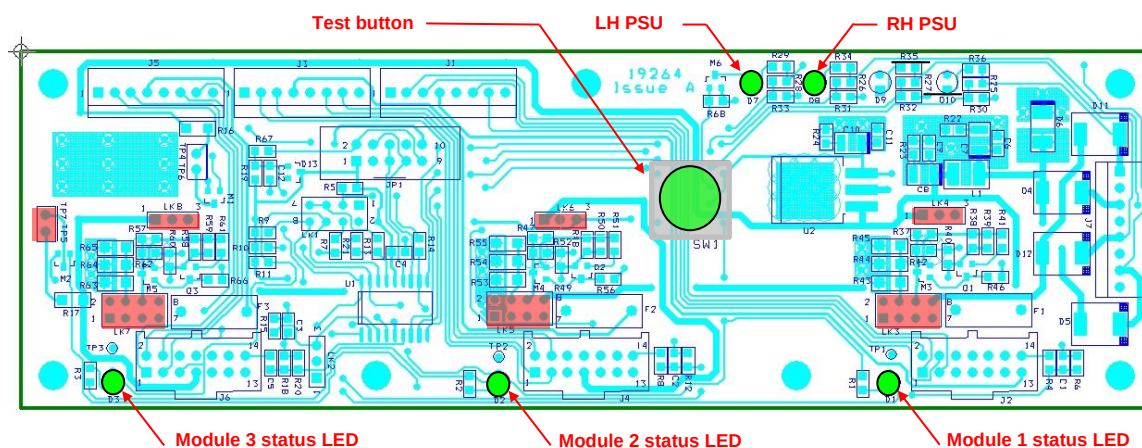
OEM module connector	Incoming optical cable connector	Type (part number digits 12,13)
• E2000/APC	FC/APC	76
• E2000/APC	E2000/APC	77
• SC/APC	FC/APC	86
• SC/APC	SC/APC	88
• SC/PC	SC/PC	AA

5.7 Testing during Operation, using ODE-A motherboard

The outdoor housing is normally fitted with five green internal LEDs and a "push to test" button SW1, as shown below. LED D8 is not fitted on systems with only a single main power supply. LEDs D9 and D10 are only fitted on special products. If a fault is suspected, or indicated by the external status LED, the status of both PSUs and the modules can be tested by using the "push to test" button.

- When the button is pressed, all LEDs should light up. **GREEN** = OKAY OFF= FAULT

Unfitted module position are equipped with "Alarm defeat headers" (PPM part number 73667) to eliminate alarms from unused positions.



5.8 Configuring the ODE-A motherboard to supply LNA power

It is also possible to configure the motherboard to provide power to remote connected modules (typically LNAs) via the OEM modules bias tee. Your system should be preconfigured to support your requested configuration. The jumper fitted to the mother board can be configured to support a range of settings. The voltage supplied to the amplifier can be preset to +5V, +12V, LNA PSU or no-connect.

Each OEM module's jumpers can be set individually as detailed above.

Check the OEM modules handbook to ensure that it is able to support bias tee powering.

Jumper LK3, LK5 and LK7 are used to select if an LNA feed voltage is required for OEM modules 1, 2, and 3 respectively.

- For no connection, connect between pins 1 and 2.
- If a DC load is required connect between pins 2 and 3, this is only available on special products.
- If an LNA feed voltage of +5V or +12V is required, connect between pins 5 and 6.
- If an LNA feed voltage from an LNA feed power supply is required, connect between pins 7 and 8.

Jumpers LK4, LK6 and LK8 set the LNA feed voltage for OEM modules 1, 2, and 3 respectively.

- Connect the jumper between pins 1 and 2 for +12V
- Connect the jumper between pins 2 and 3 for +5V.

5.9 LNA power supplies

It is possible to configure the enclosure with the right hand power supply units (RH PSU) as an LNA power supply, if voltages other than +5V and +12V are required, or if a higher current capability is required. These are some of the power supplies available.

- | | | |
|-----------------------|---|--------------------------------|
| • AC input wide range | 88 – 264Vdc, 47 - 63Hz, +18V nominal output | LNA Power supply: LPS-H-18 |
| • AC input wide range | 88 – 264Vdc, 47 - 63Hz, +24V nominal output | LNA Power supply: LPS-H-24 |
| • 12V nominal input | 9.2 – 18Vdc, +24V nominal output | LNA Power supply: LPS-H-12-24O |

5.10 Other motherboard features

Connector J2, J4, J6 are used to connect power and signal lines to OEM modules 1 (top), 2 (middle), 3 (bottom) respectively

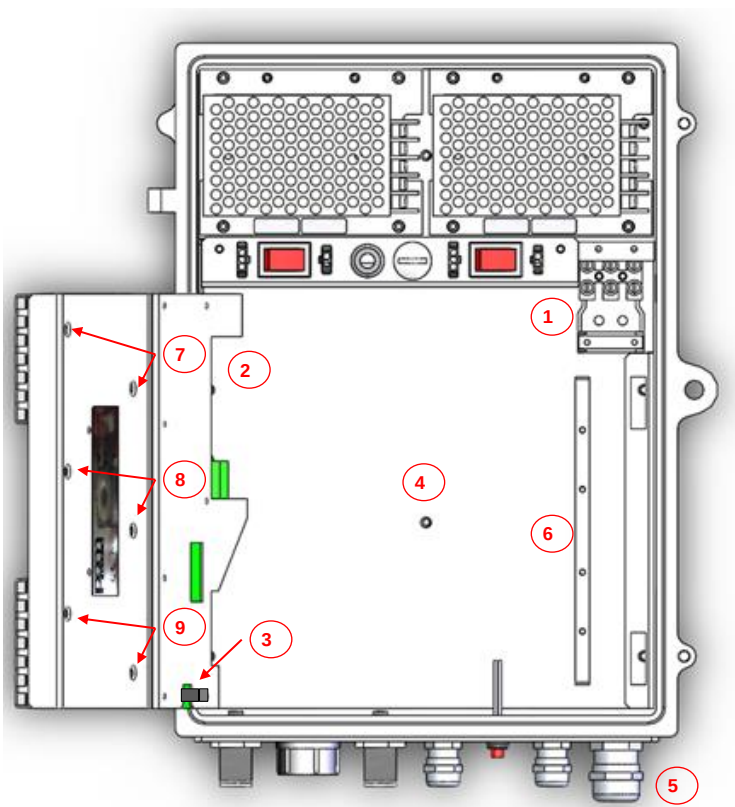
Connector J1, J3, J5 are used to provide digital inputs and output to OEM modules 1, 2, 3 respectively, they can also be used as power connectors and connections for heater mats.

The glandplate status LED is preinstalled, it's connector is mounted on the rear side of the motherboard, under TP5/TP7.

6 ODE-A base plate

The base of the ODE-A enclosure gives access to fibre management, ancillary modules (if fitted), RF cables, power cables, power input termination. To access the base follow these steps:

- Undo the two screws holding the hinge plate down. Retain the screws for later use.
- Disconnect the motherboard power loom J7
- Swing the hinge plate up being careful not to trap any RF/optical or signal cables



1. Power input terminal
2. Cable routing to top side
3. Status LED connector
4. Fibre management area / Ancillary components
5. Normal position of power input gland
6. Thermal shunt
7. Securing screw positions for OEM 1
8. Securing screw positions for OEM 2
9. Securing screw positions for OEM 3

6.1 Heater mats

Heater mats are available to provide extended low temperature operation for the enclosure. They are powered from the main 12V power supply and have a built in thermostat allowing heating when temperatures drop below a nominal 5 degree centigrade. If ordered this module will be preconfigured and fitted to your enclosure.

- 76193 Heater mat, 15 Watt, cold climate, use in conjunction with 70001 solar & wind shield

A lower power heater mat is available for units with more limited power capability such as enclosures with DC power supplies.

- 76196 Heater mat, 6 Watt, cold climate, use in conjunction with 70001 solar & wind shield

6.2 Ancillary components

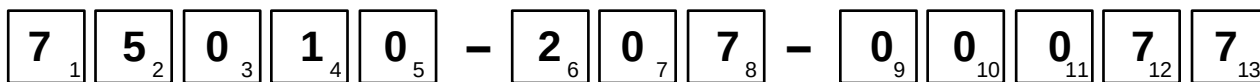
Ancillary RF and optical components can be fitted in the base of the ODE-A, allowing the user a full integrated solution in a single enclosure. The component can be passive optical components and either passive or active RF components. Active components are typically powered from the motherboard, via connectors J1, J3, J5. Listed below are some of the components available.

- 70021 Bias T DC Injector LNB/BUC powering, 0.1-4200MHz, 50 ohm SMA connectors, 30V, 500mA
- 74006 Optical WDM, high isolation, 3 * FC/APC connectors
- 74007 Optical WDM, high isolation, 3 * E2000/APC connectors
- 74008 Optical WDM, high isolation, 3 * SC/APC connectors
- 85035 3 way RF Splitter/Combiner, 700-2400MHz (other frequency bands available)
- 85063 2 way RF Splitter/Combiner, 10-2500MHz (other frequency bands available)

7 Specification

Capability	
Part Number	75010-XXX-XXXXX OEM and PSU modules are specified separately Ancillary modules are also separately specified
Number of OEM modules	1 to 3
Number of PSU modules	1 to 2
Physical Specifications	
IP Rating	IP65
External Dimensions (H:W:D)	295mm : 212mm : 74mm, no sunshield 373mm : 252mm : 94mm, with sunshield
Weight (enclosure without modules)	3.5 kg
Material	LM99 Aluminium, standard colour finish Light Grey RAL7035
Access	Front
User Interface	
RF input / output connectors	50ohm N – Female 75ohm N – Female 75ohm BNC – Female
Optical fibre connections, permanent	PG gland or FASTLINE
Optical fibre connections, connectorised	LEMO 3K (2 optical connections, 2 electrical) or ODC4 (4 optical connections)
Power supply connections, permanent	PG gland
Power supply connections, connectorised	NEUTRIK or XLR Mating half supplied or LEMO 3K (2 optical connections, 2 electrical)
Digital signal connections, connectorised	62GB Mating half supplied
Ethernet connections, connectorised	RJ45, push-pull Mating half supplied
User Adjustment Available	LNA feed mode (jumper selection)
Electrical Specifications	
Supply Voltage Options	AC 88-264 Vac DC48V nominal / 24V nominal / 12V nominal
LNA Feed Options	5V @ 80mA 12V @ 80mA Internal LNA power supply
Alarm Indications	
Indicator Type	External LED
Channels Monitored	PSU voltage rail Digital module alarms
Environmental Specifications	
Operating Temperature Range	-40°C to +60°C
Storage Temperature Range	-40°C to +70°C
Climate Control	Humidity Ventilator

8 Part number matrix



ODE-A part numbers all start with 75010

Digits 6, 7, 8 see options

Digits 9, 10, 11, 12, 13 see options

Digit 6 – The number and type of RF connectors on the gland plate, valid options stated below.

- 0 – No RF connector (for example when ODE-A is used only with serial digital OEM modules).
- 1 – 1 off 50 ohm N-type fitted
- 2 – 2 off 50 ohm N-type fitted
- 3 – 3 off 50 ohm N-type fitted
- 4 – 1 off 75 ohm BNC fitted (with weather shield)
- 5 – 2 off 75 ohm BNC fitted (with weather shield)
- 6 – 1 off 75 ohm N-type fitted
- 7 – 2 off 75 ohm N-type fitted
- 8 – 3 off 75 ohm N-type fitted

Digit 7 – The type of power supply configuration

- 0 – Enclosure configured to support dual redundant power supplies
- 1 – Enclosure configured to support single main power supply and single LNA power supply
- 2 – Enclosure configured to support single main power supply ONLY

Digit 8 – The type and number of fibre optic connections through the gland plate, valid options are stated below.

- 0 – Two PG7 fibre optic cable glands for customer fibre cable. PG11 gland for power cable
- 1 – One Fastline gland, with PG11 gland for power cable. Use for Fastline cross site cables only
- 2 – Two Fastline glands, with PG11 gland for power cable. Use for Fastline cross site cables only
- 3 – One PG11 cable gland for customer fibre cable and PG11 gland for power cable
- 4 – LEMO 3K hybrid optical connector, two optical contacts (angle polish single mode) and two electrical contacts
- 5 – Huber and Suhner ODC4-K7 optical connector with 4 E2000/APC internal pigtails. PG11 gland for power cable
- 6 – One Fastline gland for Fastline cross site cable, one PG7 gland for customer fibre cable and PG11 gland for power cable
- 7 – One PG7 cable gland for customer fibre cable and PG11 gland for power cable
- 8 – One FC/APC fitted through gland plate (not water proof). PG11 gland for power cable
- 9 – Two E2000/APC fitted through gland plate (not water proof). PG11 gland for power cable

Digit 9 – The type and number of multipole electrical connectors fitted.

- 0 – no serial digital connector.
- 1 – 1 serial digital connector, 62GB, 12 contact military spec type
- 2 – 2 serial digital connectors, 62GB, 12 contact military spec type
- 3 – 3 serial digital connectors, 62GB, 12 contact military spec type

Digit 10 – The number of water proof RJ45 Ethernet connectors fitted.

- 0 – no RJ45 connector
- 1 – 1 RJ45 connector
- 2 – 2 RJ45 connectors
- 3 – 3 RJ45 connectors

Digit 11 – Custom specific components (add new specials to this list by taking the next available number or letter and updating this document).

- 1 – 30dB RF gain block fitted for RF input 10-2500MHz and 15V LNA voltage from motherboard through OEM
- 2 – 20dB RF gain block fitted
- 3 – 4 pin XLR mains power connector in place of PG11 gland
- 6 – 2 way RF splitter/combiner fitted
- 7 – 3 way RF splitter/combiner fitted
- 8 – ODE painted olive drab and 2 x 20dB RF gain blocks fitted
- 9 – Neutrik NAC3 power connector in place of PG11 gland
- A – Input for 10MHz distribution and cabling for diplexer

Digits 12 and 13 – The type of optical bulkhead connector fitted, available options are

- 76 – E2000/APC on the OEM module side and FC/APC on the fibre optic cable side
- 77 – E2000/APC on both OEM module side and fibre optic cable side
- 86 – SC/APC on the OEM module side and FC/APC on the fibre optic cable side
- 88 – SC/APC on both OEM module side and fibre optic cable side
- AA – SC/PC on both OEM module side and fibre optic cable side

8.1 **Associated parts**

- 56103 Connector, Adaptor, SC/APC to SC/APC,
- 56181 Connector, Adaptor, E2000/APC to E2000/APC
- 56184 Connector, Adaptor, E2000/APC to FC/APC
- 56220 Connector, Adaptor, SC/PC to SC/PC

- 57107 Replaceable fuse, 2A, 250V, anti-surge, 20 x 5mm
- 57109 Replaceable fuse 5A, 250V, anti-surge, 20 x 5mm

- 70001 Sunshield & Windshield- use in high or low ambient temperatures
- 70002 Wallmount Plate for 75010 Outdoor Enclosure, Kit & Fixings
- 70004-21 Mast mounting Kit & Fixings for 75010 Outdoor Enclosure- 15-21mm pole diameter.
- 70004-34 Mast mounting Kit & Fixings for 75010 Outdoor Enclosure - 25-34mm pole diameter.
- 70004-48 Mast mounting Kit & Fixings for 75010 Outdoor Enclosure - 40-48mm pole diameter.
- 70004-60 Mast mounting Kit & Fixings for 75010 Outdoor Enclosure - 50-60mm pole diameter.
- 70004-90 Mast mounting Kit & Fixings for 75010 Outdoor Enclosure - 80-90mm pole diameter.
- 70004-115 Mast mounting Kit & Fixings for 75010 Outdoor Enclosure - 110-115mm pole diameter.
- 70004-168 Mast mounting Kit & Fixings for 75010 Outdoor Enclosure - 150-168mm pole diameter.

- 70005 GPS marine active antenna, 5dBi, 28dB amplifier gain
- 70006 Lightning Suppressor Kit for Outdoor Enclosure, 800-2500MHz Passband + DC Path, 1 required per RF Channel
- 70013 Lightning Suppressor Kit for Outdoor Enclosure, DC-5800MHz Passband, 1 required per RF Channel
- 70021 Bias T DC Injector LNB/BUC powering, 0.1-4200MHz, 50 ohm SMA connectors, 30V, 500mA
- 70026 Gland Guard protects items on the gland plate of ODE-A outdoor enclosure.
- 70040 GPS active antenna, 3.5dBi, 50dB amplifier gain
- 73667 Alarm defeat header
- 74006 Optical WDM, high isolation, 3 * FC/APC connectors
- 74007 Optical WDM, high isolation, 3 * E2000/APC connectors
- 74008 Optical WDM, high isolation, 3 * SC/APC connectors
- 76193 Heater mat, 15 Watt, cold climate, use in conjunction with 70001 solar & wind shield
- 76196 Heater mat, 6 Watt, cold climate, use in conjunction with 70001 solar & wind shield

- 83009 FC/APC Pigtail, 8/125um, 900um coated fibre
- 83016 E2000/APC Pigtail, 8/125um, 900um coated fibre
- 83033 SC/APC Pigtail, 8/125um, 900um coated fibre
- 83037 SC/PC Pigtail, 8/125um, 900um coated fibre

- 85035 3 way RF Splitter/Combiner, 700-2400MHz (other frequency bands available)
- 85063 2 way RF Splitter/Combiner, 10-2500MHz (other frequency bands available)

- LPS-H Main Power supply AC input wide range
- LPS-H-12 Main Power supply 12V nominal input
- LPS-H-18O LNA Power supply AC input wide range, 18V nominal output
- LPS-H-24 Main Power supply 24V nominal input
- LPS-H-24O LNA Power supply AC input wide range, 24V nominal output
- LPS-H-48 Main Power supply 48V nominal input

9 Maintenance and Fault-Finding Guide

Refer to the following table that gives a list of commonly encountered problems and suggested solutions.

Fault	Possible Causes	Solution
Alarm LED flashing once per 2 seconds	Correct operation, No fault	
No power Alarm LED not illuminated	Incoming power failure Isolation switches set incorrectly Fuse blown Failed power supply	Restore input power Turn power isolation switches ON Replace failed fuse (check for cause) Replace failed power supply
PSU failure Alarm LED flashing twice per second	Isolation switches set incorrectly Failed power supply module Single power supply fitted to incorrectly configured cabinet	Turn power isolation switches ON Replace failed power supply Not in shipped configuration Contact ViaLite communications
Module failure Alarm LED flashing rapidly	Module header disconnected/damaged Poor optical connection Failed active antenna [GPS units fitted with load simulator will alarm if the antenna fails] Alarm defeat header missing from empty position Failed OEM module	Restore connection to 14 way header Clean connector and check terminations Replace antenna Fit 73667 Alarm defeat header Replace OEM module

10 **Product warranty**

PPM guarantees its **ViaLite** products, and will maintain them for a period of three years from the date of shipment and at no cost to the customer. Extended warranty options are available at the time of purchase.

Please note that the customer is responsible for shipping costs to return the module to PPM.

PPM or its agents will maintain its **ViaLite** products in full working order and make all necessary adjustments and parts replacements during PPM's normal working hours provided that the Customer will pay at the rates currently charged by PPM for any replacements made necessary by accident, misuse, neglect, wilful act or default or any cause other than normal use.

Claims must be made promptly, and during the guarantee period.

IMPORTANT: -

Please contact both your selling agent and PPM prior to returning any goods for warranty or non-warranty repairs. Goods will not be accepted without a valid Return Materials Authorisation (RMA) number.

11 FCC Approval

Information to the user of **ViaLite** products:

For a Class A digital device or peripheral, the following instructions are furnished to the user. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

© PULSE POWER & MEASUREMENT LTD 2014.

NO PART OF THIS DOCUMENT MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM WITHOUT PRIOR WRITTEN PERMISSION.

PPM, 65 SHRIVENHAM HUNDRED BUSINESS PARK, SWINDON, SN6 8TY, UK.

TEL: +44 1793 784389

FAX: +44 1793 784391

EMAIL : SALES@VIALITE.COM

WEBSITE : WWW.VIALITE.COM